

SELF-PINNED DOUBLE TUNNEL JUNCTION HEAD

ABSTRACT

A thin dual magnetic tunnel junction head having a free layer and first and second antiparallel (AP) pinned layer structures positioned on opposite sides of the free layer, each of the AP pinned layer structures including at least two pinned layers having magnetic moments that are self-pinned antiparallel to each other, the pinned layers of each AP pinned layer structure being separated by an AP coupling layer. A first barrier layer is positioned between the first AP pinned layer structure and the free layer. A second barrier layer is positioned between the second AP pinned layer structure and the free layer. The head does not have any antiferromagnetic layers, and so is much thinner than dual magnetic tunnel junction sensors heretofore known. As such, dual magnetic tunnel junction heads can be fabricated at a thickness of less than about 500Å.